## SUGGESTION FOR "GROUPED BELOW GROUND LEVEL SILO STORAGE OF HIGH LEVEL NUCLEAR WASTE CASKS"

Prepared by Martin L. Meltz, Ph.D. October 7, 2011

Retired Professor with Tenure and Radiation Biologist, Univ. of Texas Health Science Center at San Antonio

Past-President, South Texas Chapter of the Health Physics Society

Vice-Chair, Committee on Man and Radiation (COMAR) of the EMBS

Member, International Committee on Electromagnetic Safety (ICES) of IEEE

Past member-Regional Emergency Medical Preparedness Steering Committee (REMPSC), San Antonio, Texas

Resident: Shell Beach, California

20-872-2275 email: martinLmeltz@sbcglobal.net

## In any state or group of states which have nuclear facilities requiring long-term storage of high-level nuclear waste, with this waste storable in dry casks:

- A. Identify geographic areas that have:
  - 1. extremely low risk of physical disruption due to an earthquake, volcanic activity, or extensive flooding (and with attention to any possible hurricane or tornado threats), and
  - 2. with no groundwater or bodies of water immediately available to be contaminated by leakage;
- B. Identify specific sites within these geographic areas where:
  - 1. a series of separated, below ground level silos could be constructed so that dry nuclear waste casks could be lowered individually into each silo; and
  - 2. transportation of casks to the site can safely be arranged.
- C. Construct the individual below ground level silos of large enough cross-section (diameter) so that:
  - 1. an external portable enclosure or shield can be lowered over any cask
    - i. that begins to leak radiation, to contain the leak in place,
    - ii. to allow for the leaking flask to be lifted out of the silo, and transported for remediation,
    - iii. to allow for future removal of the cask and transport for future fuel processing;
  - 2. if the leakage becomes severe, the individual cask can be permanently encased in its silo in cement.
- D. Identification of other nearby (responsible-by-energy use) sites

Depending on the geology of the area, if the producer plant provides energy or materials to an adjoining area (a benefiting area) in which a more appropriate site is located, the latter should be considered for the silo storage location.

## E. Compensation

- 1. Any county and state which serve as the location of the silo storage facility should be rewarded financially for housing the silo storage site by the owner of the waste generator, and also receive compensation from those other states that benefit from the used of that storage location.
- 2. Any county and state through which nuclear waste casks are transported to the silo facility, for underground storage, should also be rewarded financially by those entities and states allowed to use the underground facility.

## F. Benefits

- 1. The underground location will reduce any line of site terrorist rocket threat. Targeting from above could be reduced by camouflaging the opening of the silo, and a cooling "blanket" could be employed to reduce any thermal profile (heat seeking missiles).
- 2. Radiation monitors that would be used to detect any leakage would be protected from the environment, as would any sound detecting equipment and cameras for visual inspections.
- 3. Any risk from tornados or hurricanes would be largely eliminated.
- 4. Any ground shifts by plane crashes, above ground shelling, etc., would not result in toppling of the casks.